The following was presented at DMT'11
(May 22-25, 2011).

The contents are provisional and will be
superseded by a paper in the
DMT'11 Proceedings.

See also earlier Proceedings (1997-2010)
http://ngmdb.usgs.gov/info/dmt/

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Geologic Mapping Community Of Use (GMCoU)
Digital Mapping Techniques 2011

Allen Crider – National Cooperative Geologic Mapping Program
Kent Brown – Utah Geological Survey
Randy Orndorff – Director, Eastern Geology and Paleoclimate Science Center
Michael Cooley – National Geospatial Program
Greg Allord – National Geospatial Program
Dave Greenlee – National Geospatial Program
Jim Barrett – Contractor, National Geospatial Program
Stafford Binder – National Geospatial Program (retired)

U.S. Department of the Interior
U.S. Geological Survey

May 23, 2011

Background

- During the 2009 Geologic Digital Mapping Techniques working group meeting a proposal was made to test …
  - “proof-of-concept test beginning 10/1/09”

- Formation of GMCoU
  - Kick off meeting 5/13/2010
  - Membership

- What is a “Community of Use”
  - Group of users with common needs
  - Not a ‘one time shot’

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What are we trying to do ?

- To make the TNM data and products more useful to core customers (like GMCoU)
- Address fundamental misconception of what TNM is
- Historically have used paper topographic maps, scanned maps, DEM, map separates etc… to do their work.
- Today we want this relationship to continue…but we want to do so in a manner where we:
    - Improve their business processes
    - Improve their consistency of data supply

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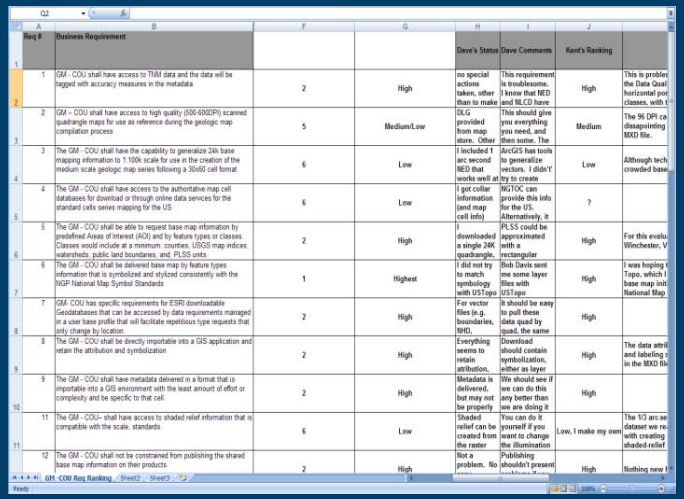
Geologic mapping CoU - ranking of the needs

1. “The GM - COU shall be delivered base map by feature types information that is symbolized and stylized consistently with the NGP National Map symbol standards”

2. “GM- COU has specific requirements for ESRI downloadable Geodatabases that can be accessed by data requirements managed in a user base profile that will facilitate repetitious type requests that only change by location”

3. “The GM-COU require the ability to alter the labeling of the provided content to support their map publishing process and products”



Req #	Business Requirement	F	G	Dave's Status	Dave Comments	Kent's Ranking	
1	GM - COU shall have access to TNM data and the data will be tagged with accuracy measures in the metadata	2	High	no special actions taken, other than to make	This requirement is troublesome. I know that NED and NLCD have	High	This is proble the Data Qual horizontal poi classes, with t
2	GM – COU shall have access to high quality (500-600DPI) scanned quadrangle maps for use as reference during the geologic map compilation process	5	Medium/Low	DLG provided from map store. Other	This should give you everything you need, and then some. The	Medium	The 96 DPI ca disappointing MXD file.
3	The GM - COU shall have the capability to generalize 24k base mapping information to 1:100k scale for use in the creation of the medium scale geologic map series following a 30x60 cell format	6	Low	I included 1 arc second NED that works well at	ArcGIS has tools to generalize vectors. I didn't try to create	Low	Although tech crowded base
4	The GM - COU shall have access to the authoritative map cell databases for download or through online data services for the standard cells series mapping for the US	6	Low	I got collar information (and map cell info)	NGTOC can provide this info for the US. Alternatively, it	?	
5	The GM - COU shall be able to request base map information by predefined Areas of Interest (AOI) and by feature types or classes. Classes would include at a minimum: counties, USGS map indices, watersheds, public land boundaries, and, PLSS units	2	High	I downloaded a single 24K quadrangle,	PLSS could be approximated with a rectangular	High	For this evalu Winchester, V
6	The GM - COU shall be delivered base map by feature types information that is symbolized and stylized consistently with the NGP National Map Symbol Standards	1	Highest	I did not try to match symbology with USTopo	Bob Davis sent me some layer files with USTopo	High	I was hoping t Topo, which I base map init National Map
7	GM- COU has specific requirements for ESRI downloadable Geodatabases that can be accessed by data requirements managed in a user base profile that will facilitate repetitious type requests that only change by location	2	High	For vector files (e.g. boundaries, NHD,	It should be easy to pull these data quad by quad, the same	High	
8	The GM - COU shall be directly importable into a GIS application and retain the attribution and symbolization	2	High	Everything seems to retain attribution,	Download should contain symbolization, either as layer	High	The data attri and labeling s in the MXD file
9	The GM - COU shall have metadata delivered in a format that is importable into a GIS environment with the least amount of effort or complexity and be specific to that cell.	2	High	Metadata is delivered, but may not be properly	We should see if we can do this any better than we are doing it	High	
11	The GM - COU– shall have access to shaded relief information that is compatible with the scale, standards	6	Low	Shaded relief can be created from the raster	You can do it yourself if you want to change the illumination	Low, I make my own	The 1/3 arc-se dataset we re with creating shaded-relief
12	The GM - COU shall not be constrained from publishing the shared base map information on their products	2	High	Not a problem. No	Publishing shouldn't present	High	Nothing new !

GM_COU Req Ranking | Sheet2 | Sheet3

Ready

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How well aligned is TNM to GMCoU ?

- Ya all have a need for nationally consistent topographic data
  - *We are beginning to produce, again, Nationally consistent topographic data*
- Ya all have a need for cartographically finished data
  - *We are producing cartographically finished data*
  - *We are producing marginalia and collar information*
- Ya all have a need for standard map cell based data
  - *We produce to standard map cells*
- Ya all have a need for all this to come into GIS for map editing and publication
  - *We are not currently doing this….*

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A Vision

Through the viewer, this mapping community will be able to download all preselected symbolized data sets with a single (or at most two) click(s) of the mouse.

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Base Maps For Geologic Mapping

Kent D. Brown
Geologic Mapping Program
Utah Geological Survey

May 13, 2011

U.S. Department of the Interior
U.S. Geological Survey

US Topo

2006 Digital Mapping Techniques Workshop
Columbus, OH

Stafford Binder (USGS retired) introduced attendees to the new US Topo Series, GeoPDFs

Only as GeoPDF files, really…?

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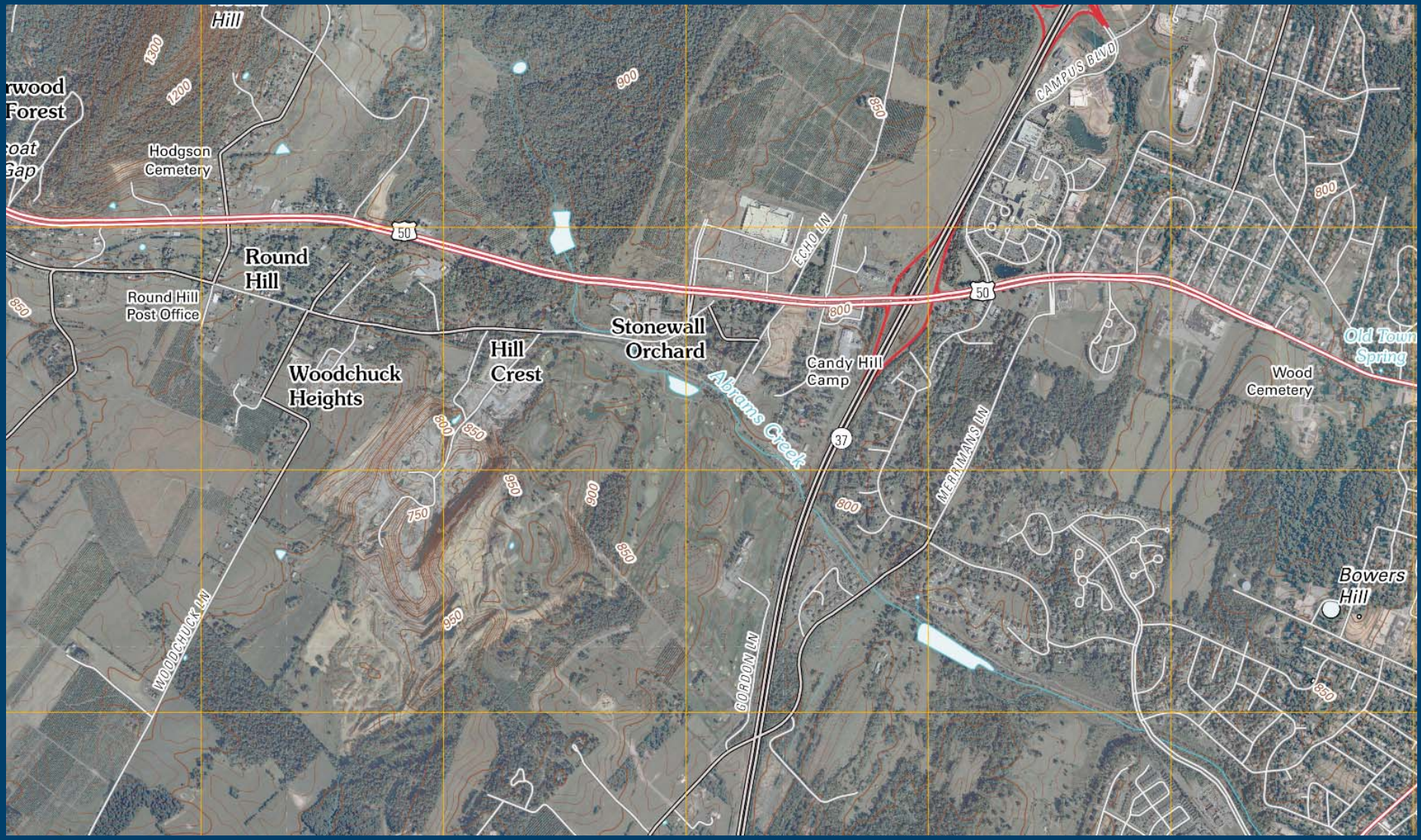
US Topo – Winchester, VA Quad



US Topo

Big question is:

Can They Be Opened In ArcMap?

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US Topo

Big question is:

Can They Be Opened In ArcMap?

Short answer:

Nope!

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US Topo

May 13, 2010 – First conference call with
Mike Cooley, Jim Barrett, and Stafford Binder

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US Topo

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My question to them:
Can you pretty please, release the US Topo maps as ESRI file geodatabases?

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US Topo

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Short answer:
We want to, but we need to crawl before we walk…

We can download data from *The National Map.*

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New Initiative – Base Maps for Geologic Mapping

Pilot Download project - Winchester, VA Quad

- Data layers were extracted from *The National Map,* imported into ArcGIS, and symbolized to closely match the USGS standard topographic series.
- The result was evaluated by Allen Crider (NCGMP) and myself.

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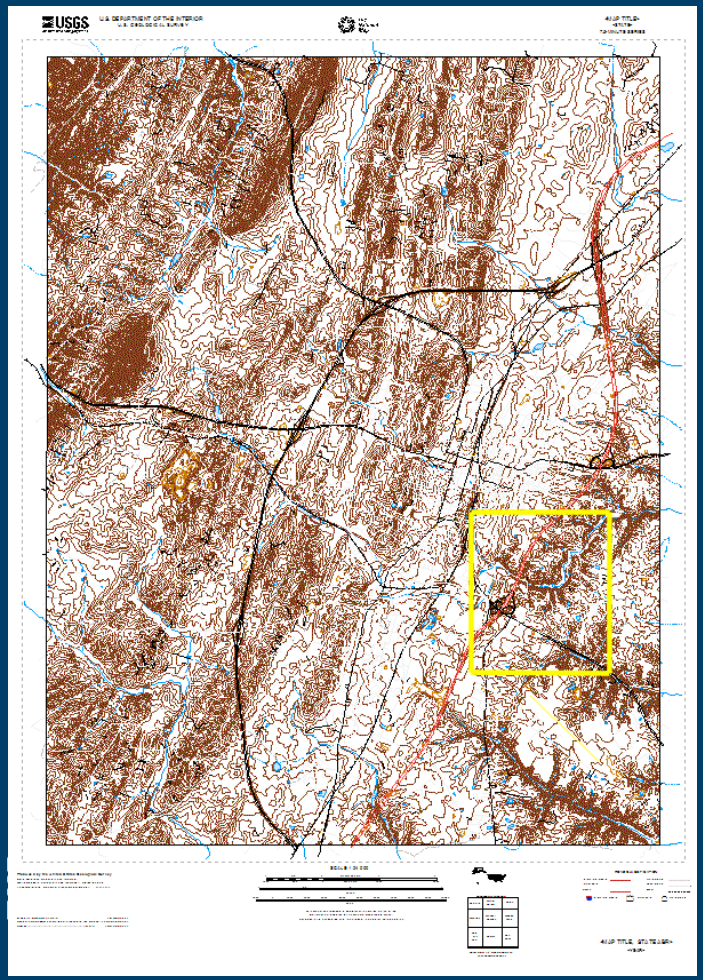
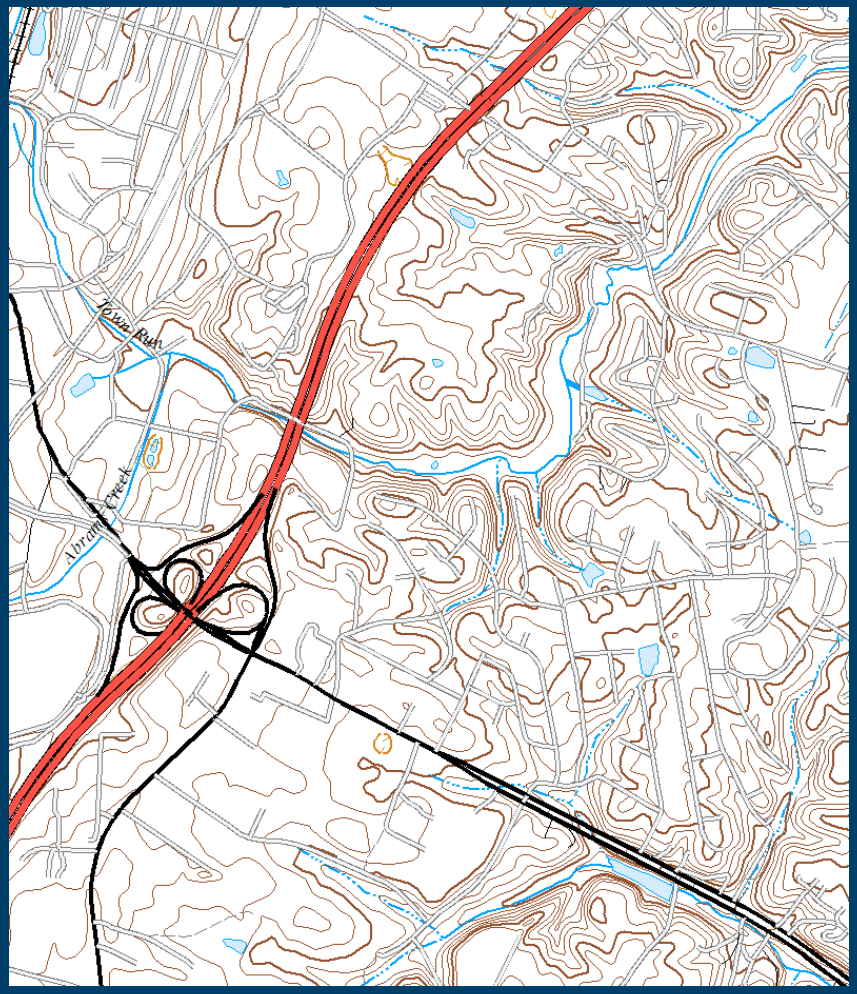
New Initiative – Base Maps for Geologic Mapping

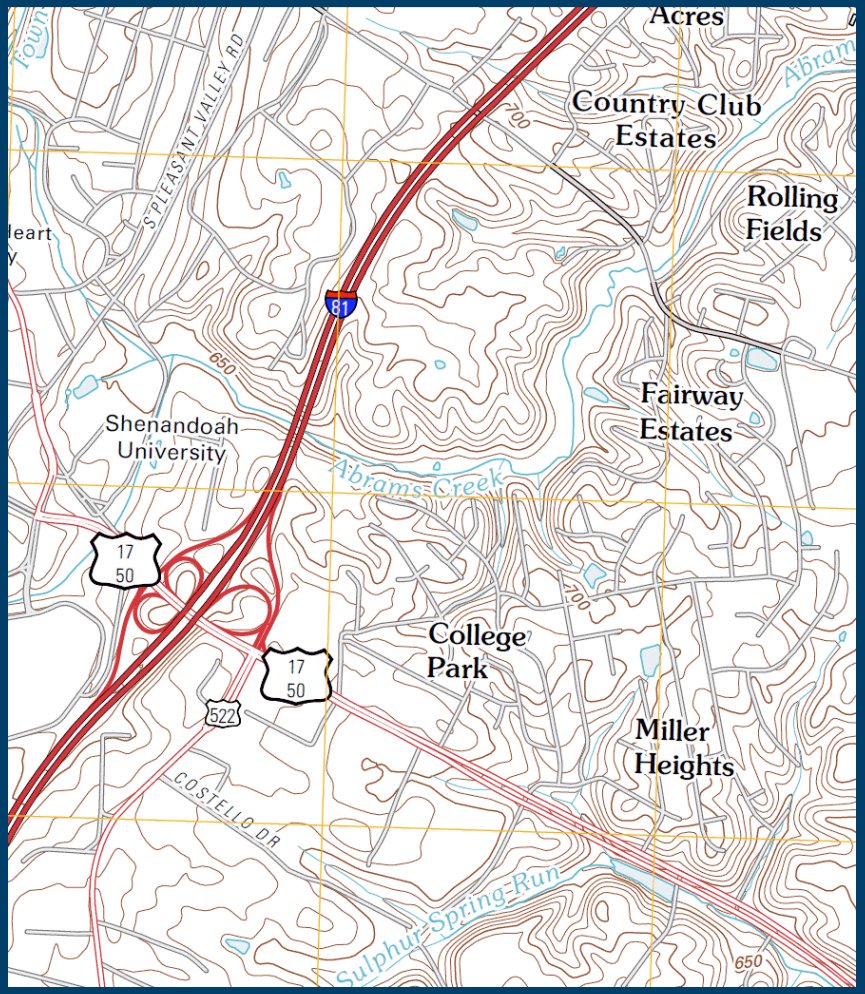
TNM Pilot project - Winchester, VA Quad



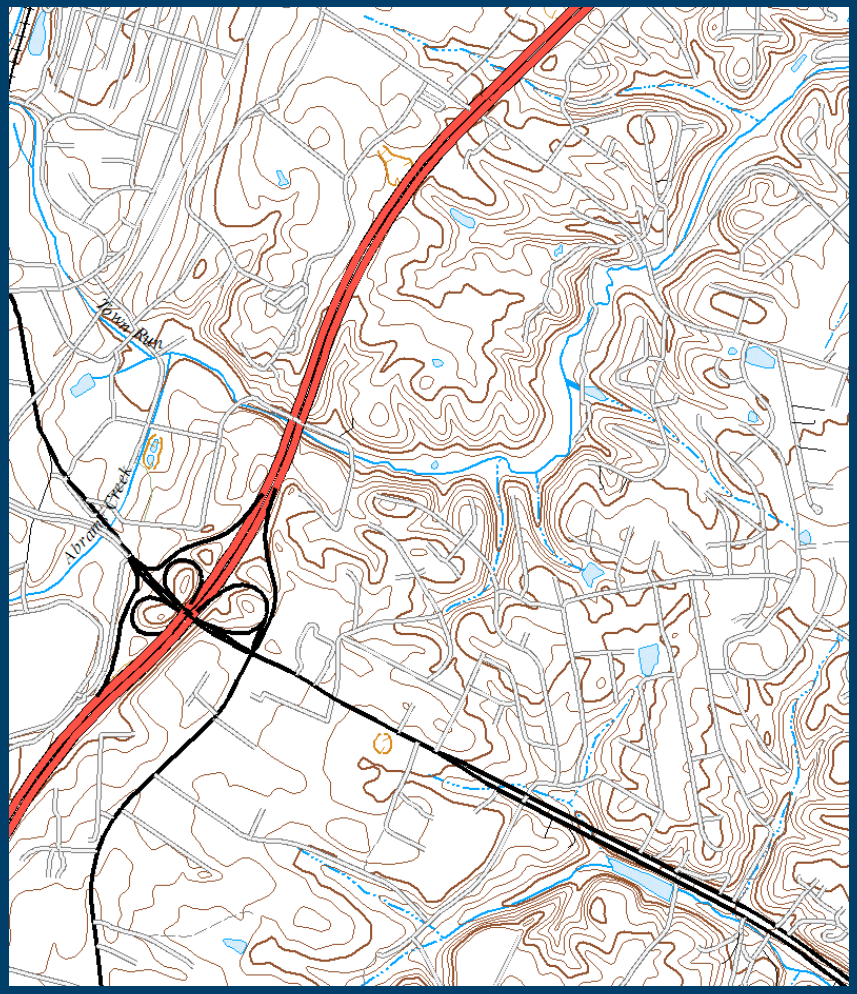


New Initiative – Base Maps for Geologic Mapping

US Topo



Pilot Project



Current GIS Mapping Project

Geologic Map of the St. George Quadrangle,
Washington County, Utah

- 2011 Publication (soon)
- Standard Topographic Base from 1986 is unsuitable
- Can't use current US Topo Series Maps in ArcGIS (GeoPDF not supported)
- What are my current options for a suitable base map?

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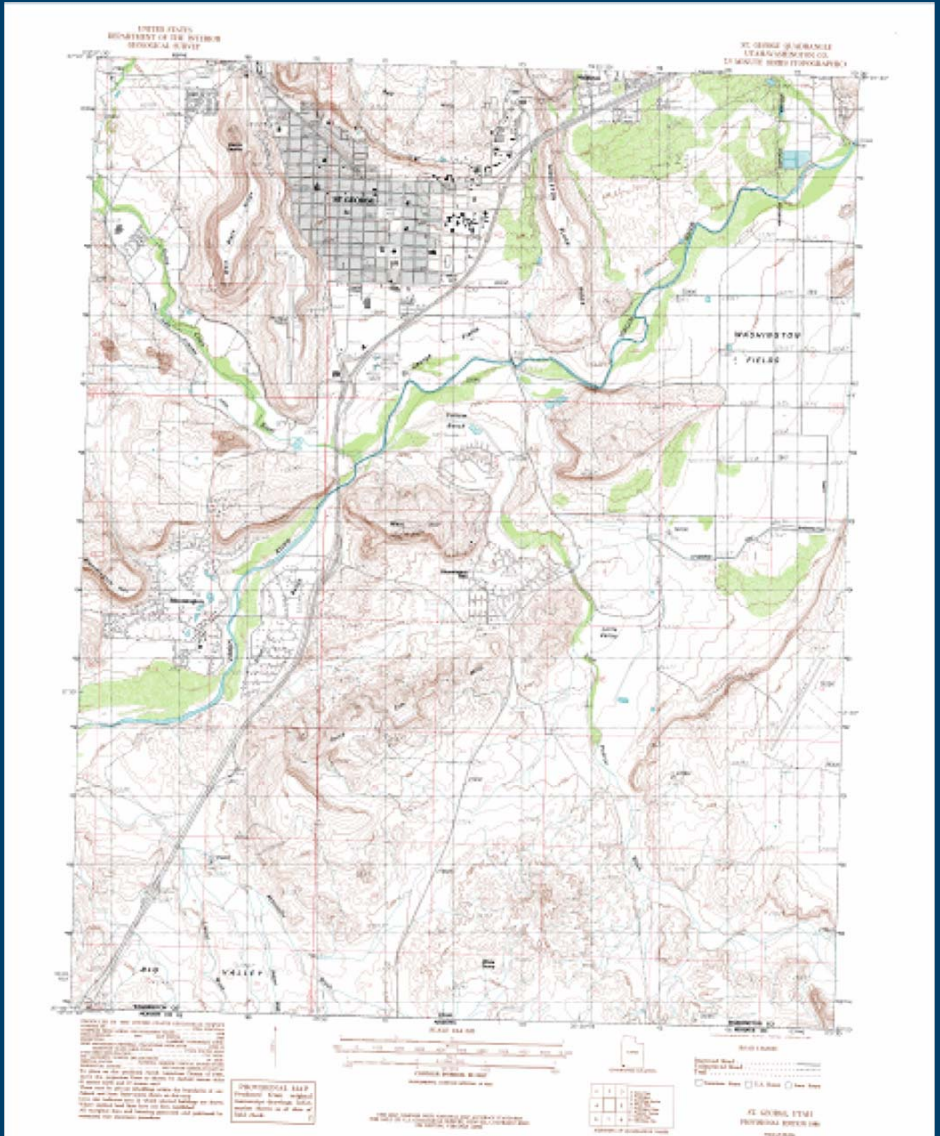
Standard Topographic Series

St. George, Utah
Quadrangle
1986



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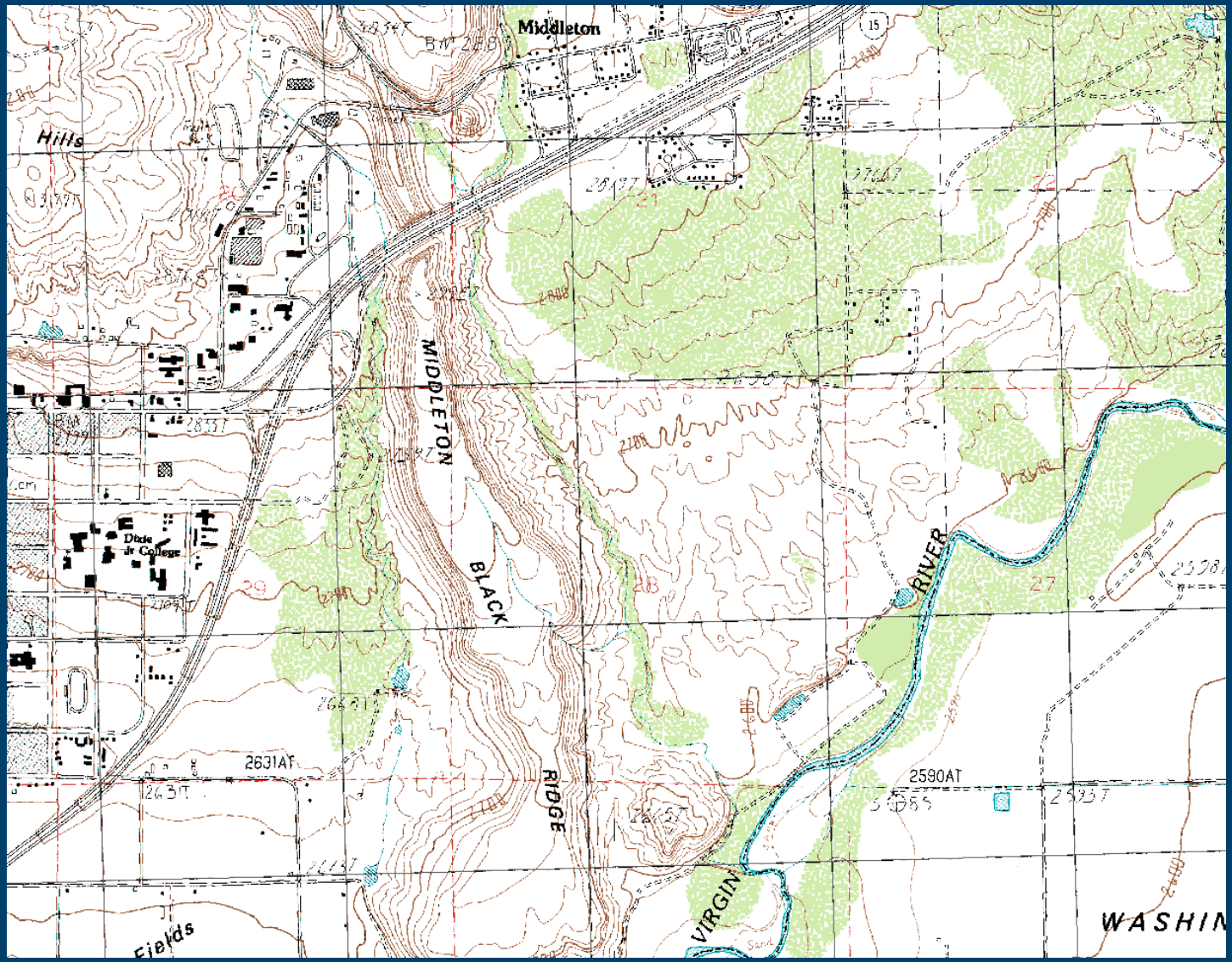
Standard Topographic Series

St. George Quad
1986
NE Corner



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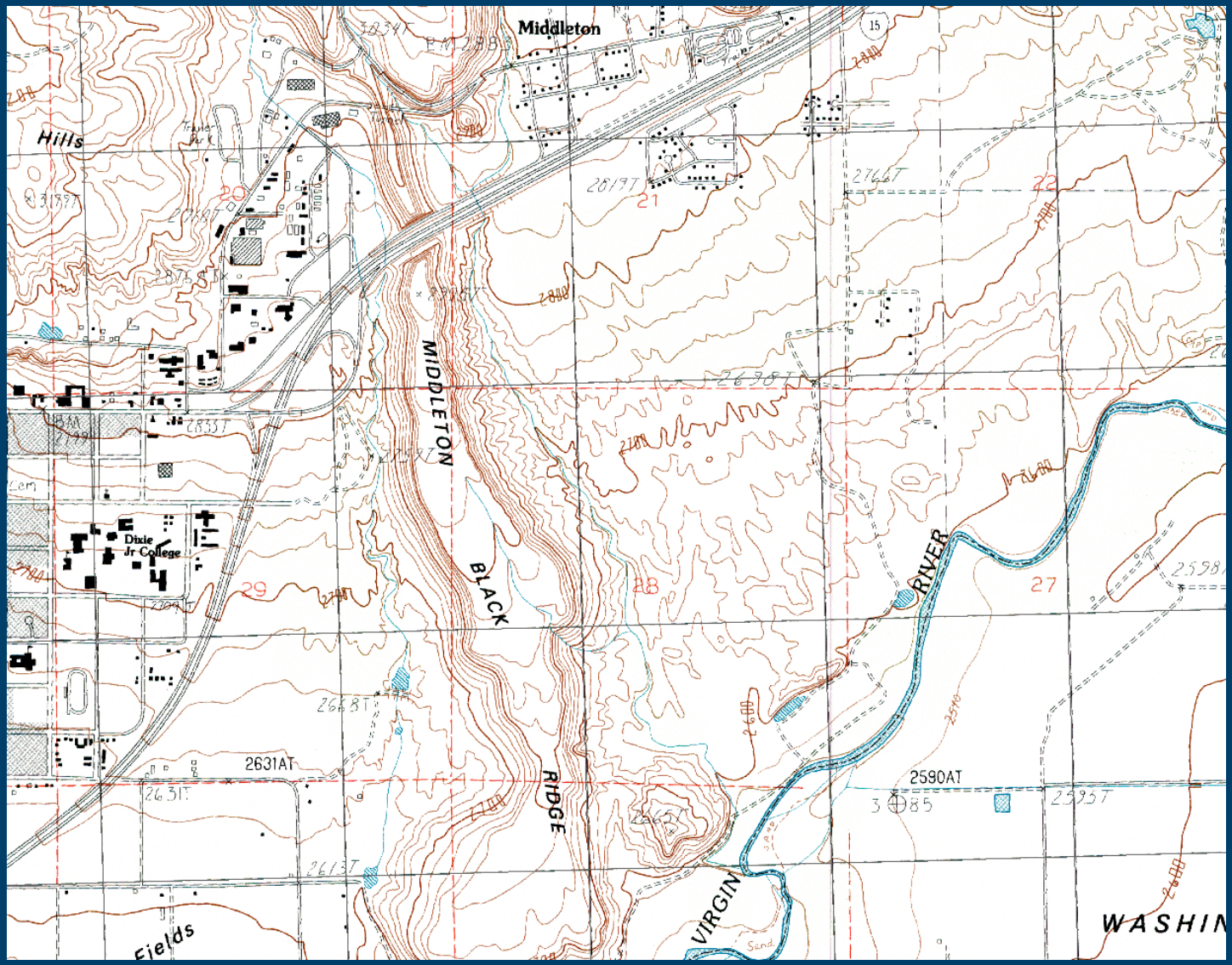
Standard Topographic Series

St. George Quad
1986
NE Corner

Paper Map Was Scanned (400ppi) And Rectified To 2.5' Ticks



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2009 NAIP Ortho

St. George Quad
NE Corner

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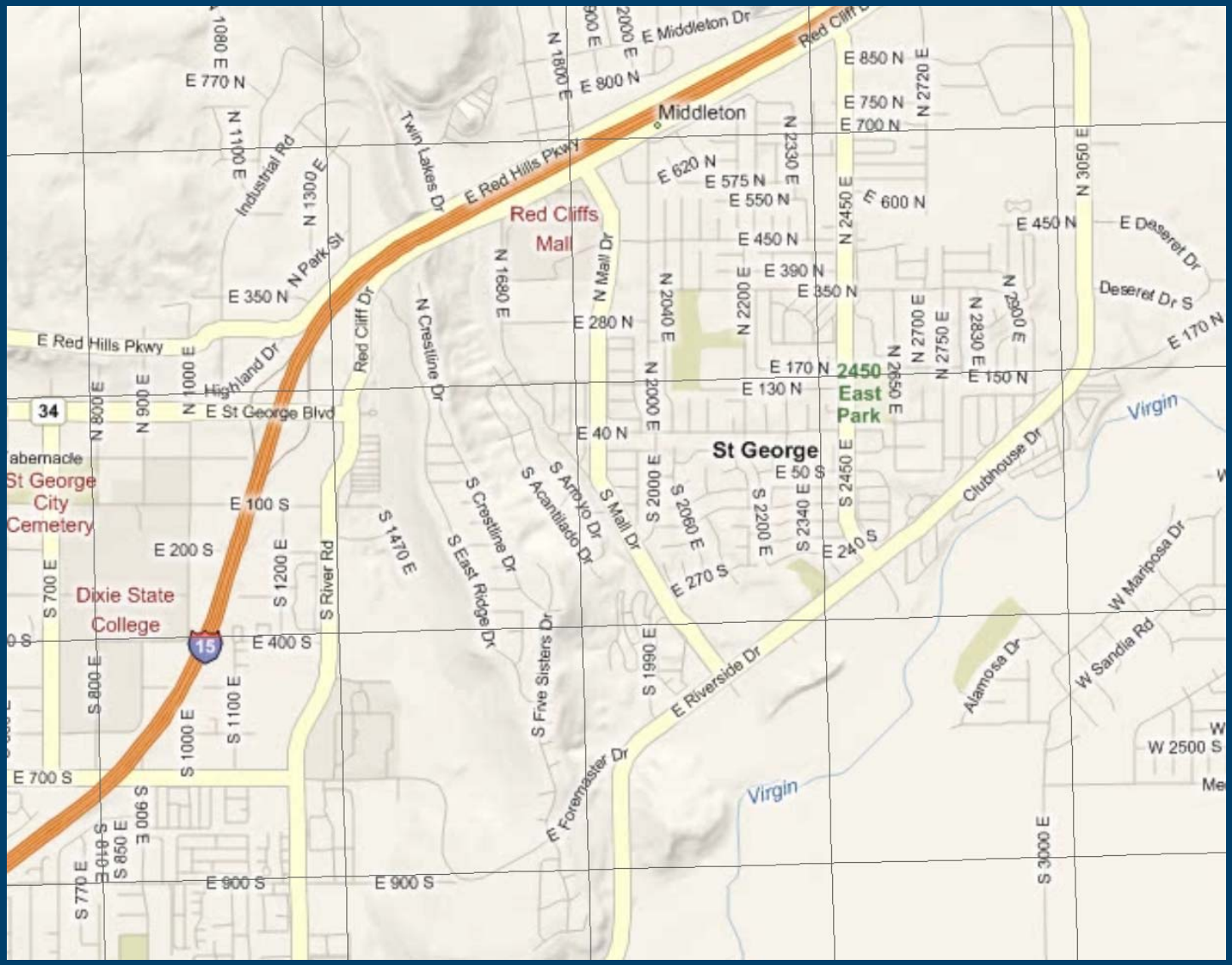
“Bing Maps”

St. George Quad
NE Corner

Base Map Service
for ArcGIS 10

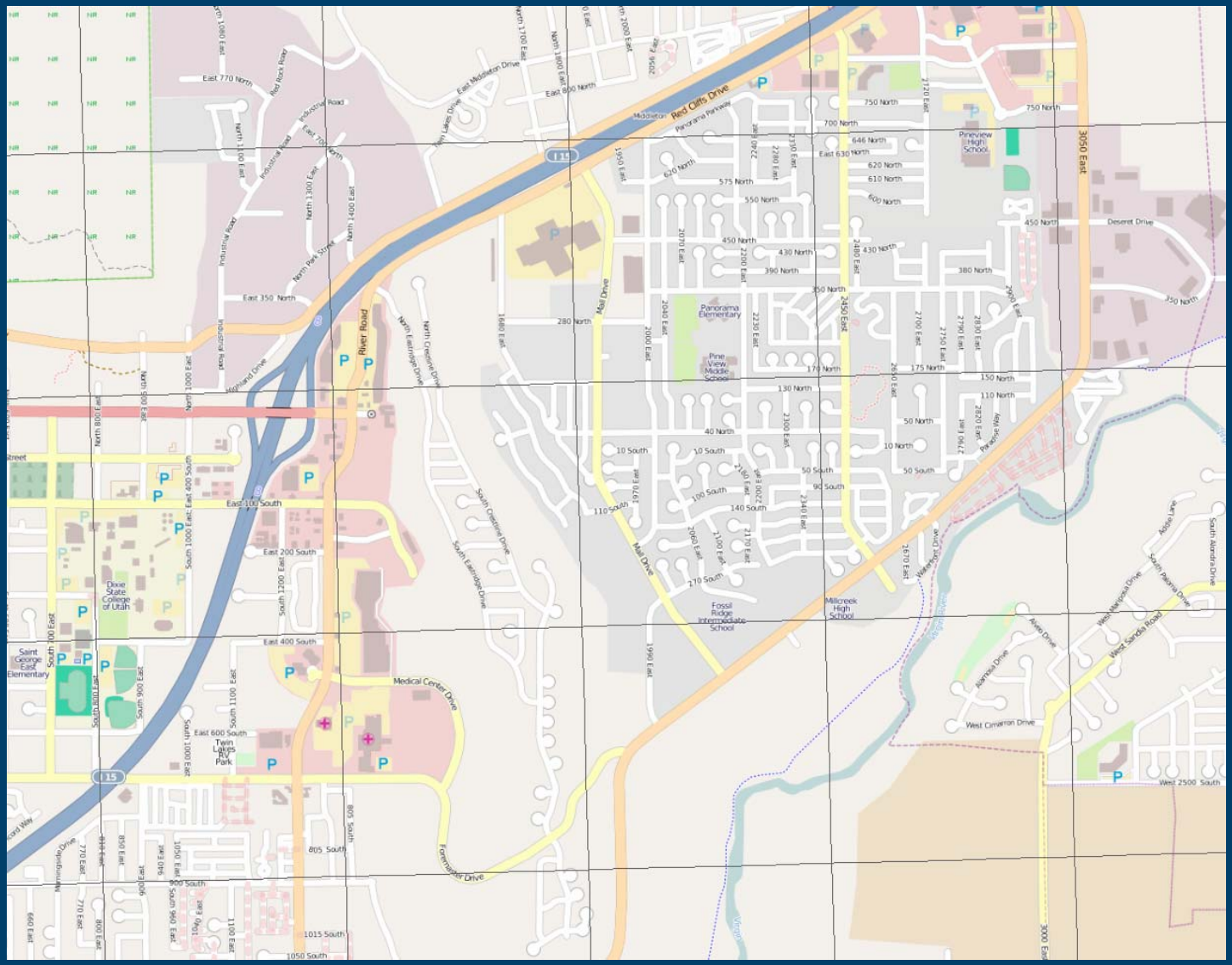


USGS

“Open Street Map”

St. George Quad
NE Corner

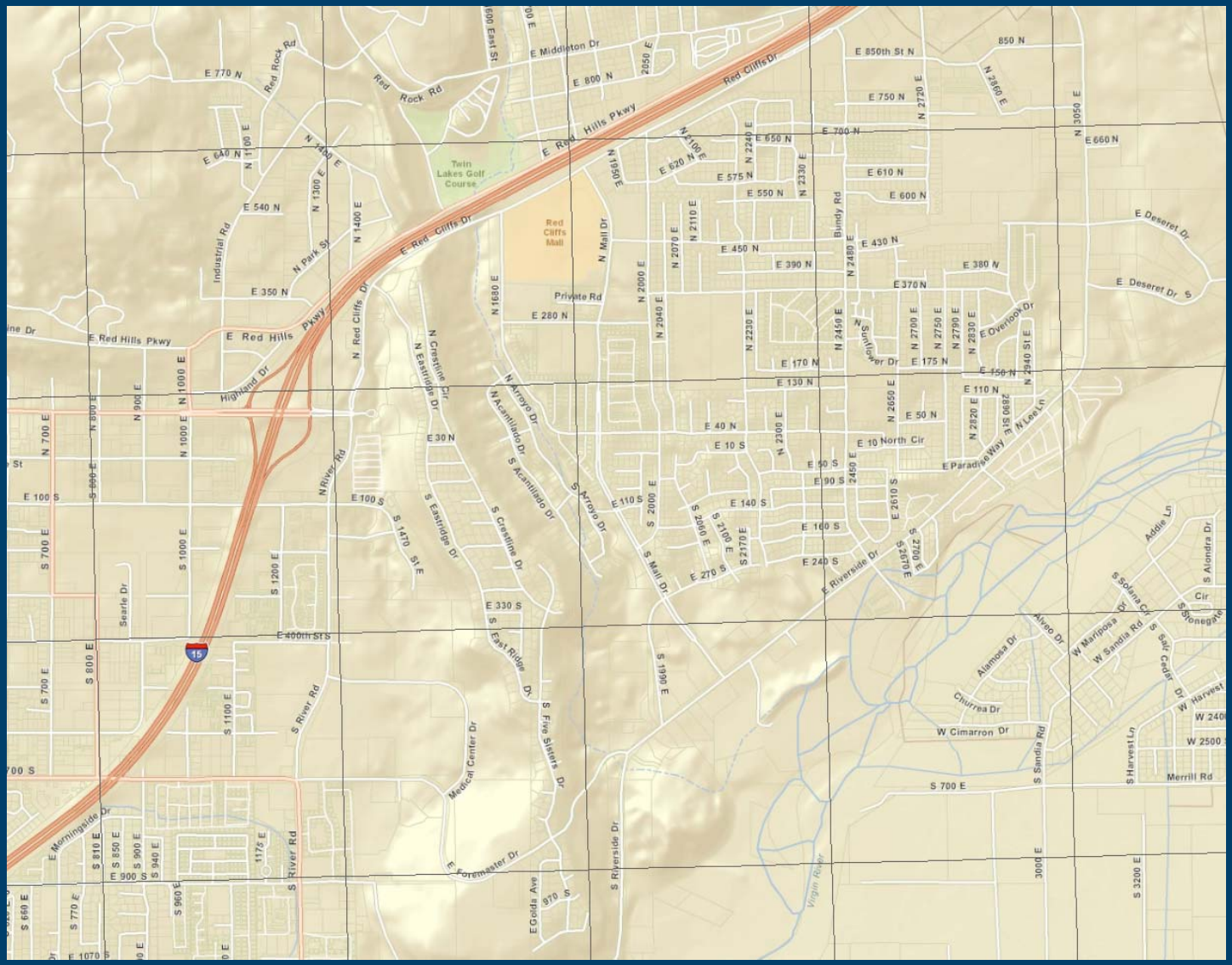
Base Map Service
for ArcGIS 10



“Streets”

St. George Quad
NE Corner

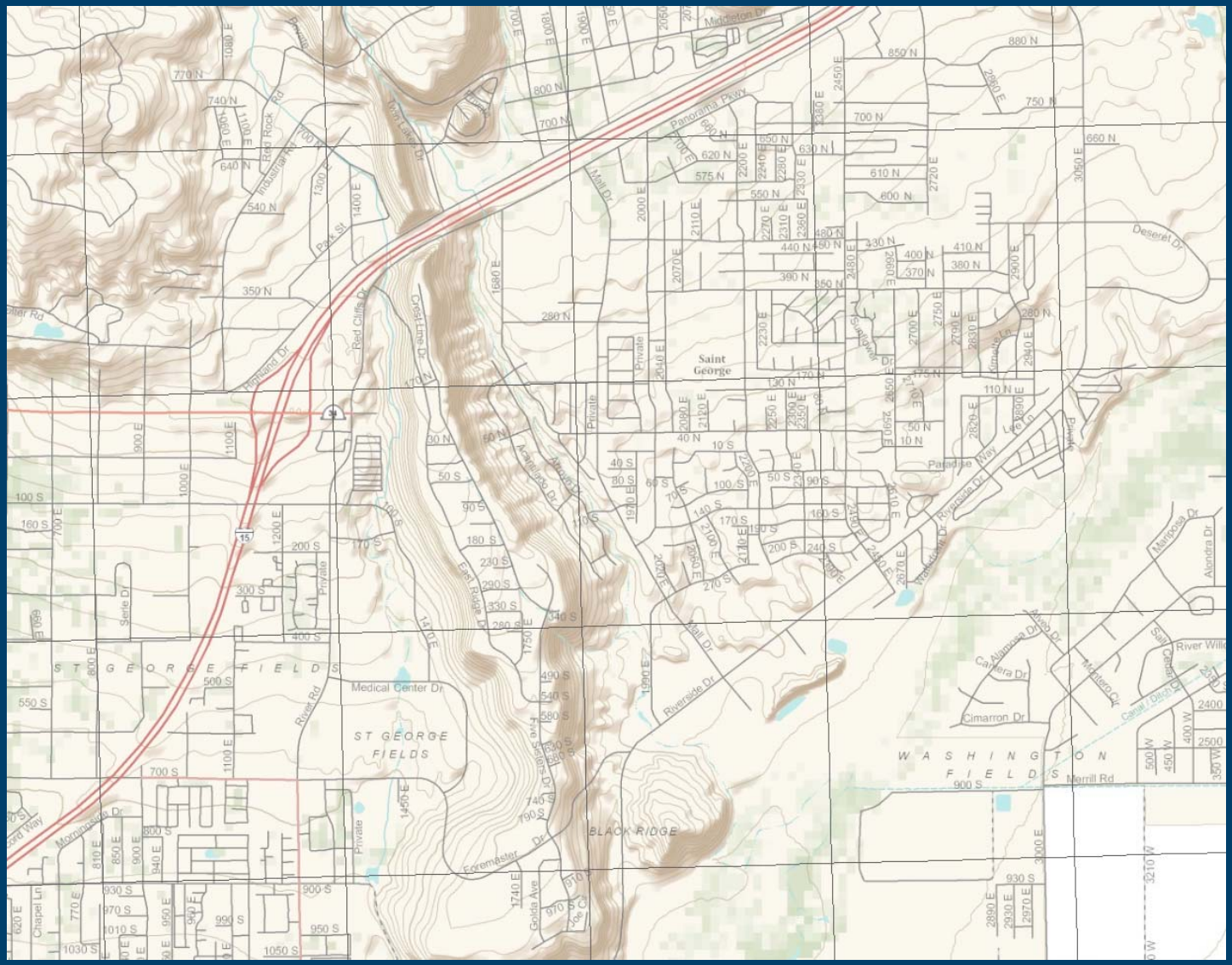
Base Map Service
for ArcGIS 10



“Topographic”

St. George Quad
NE Corner

Base Map Service
for ArcGIS 10



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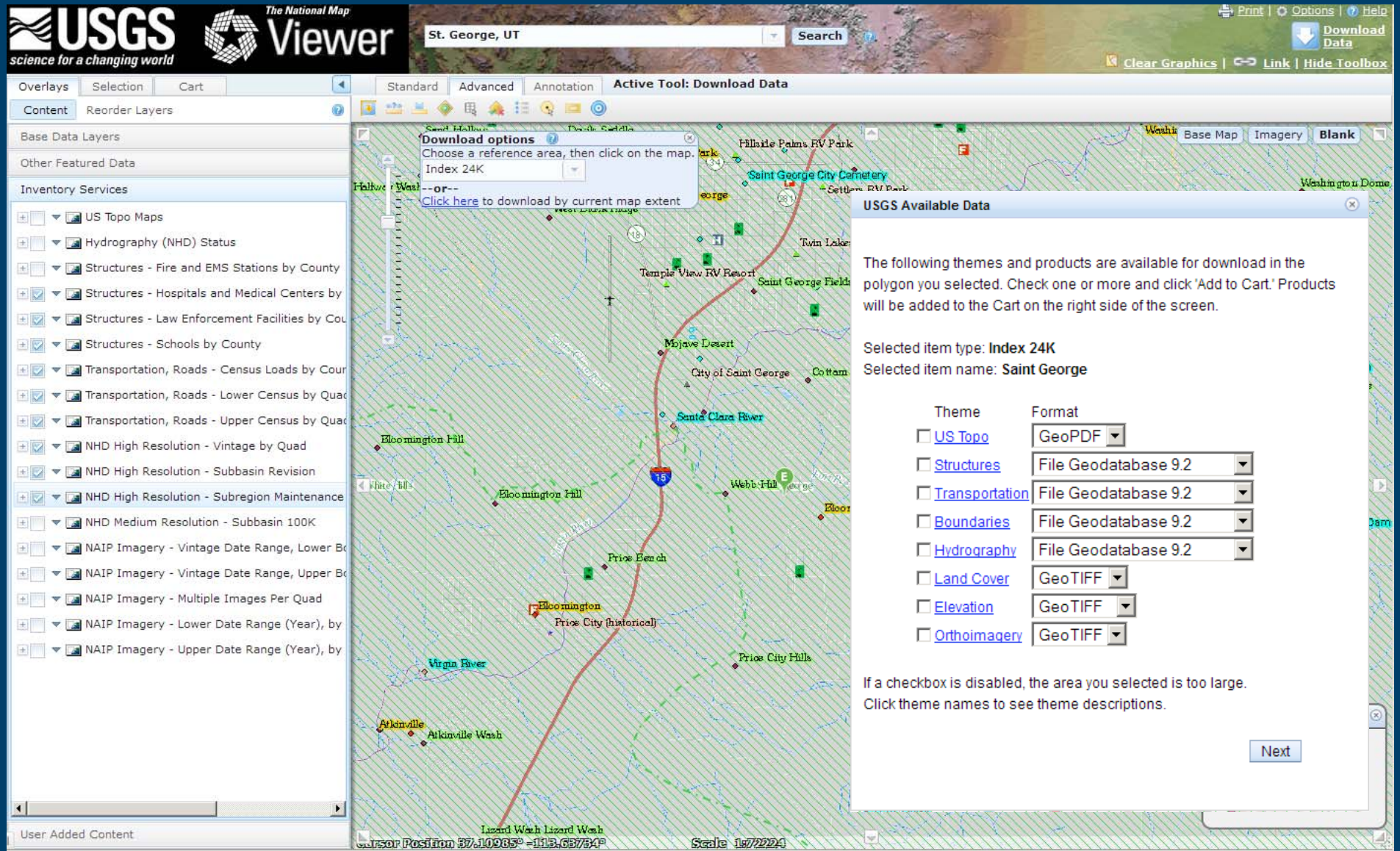
Downloads From *The National Map Viewer*

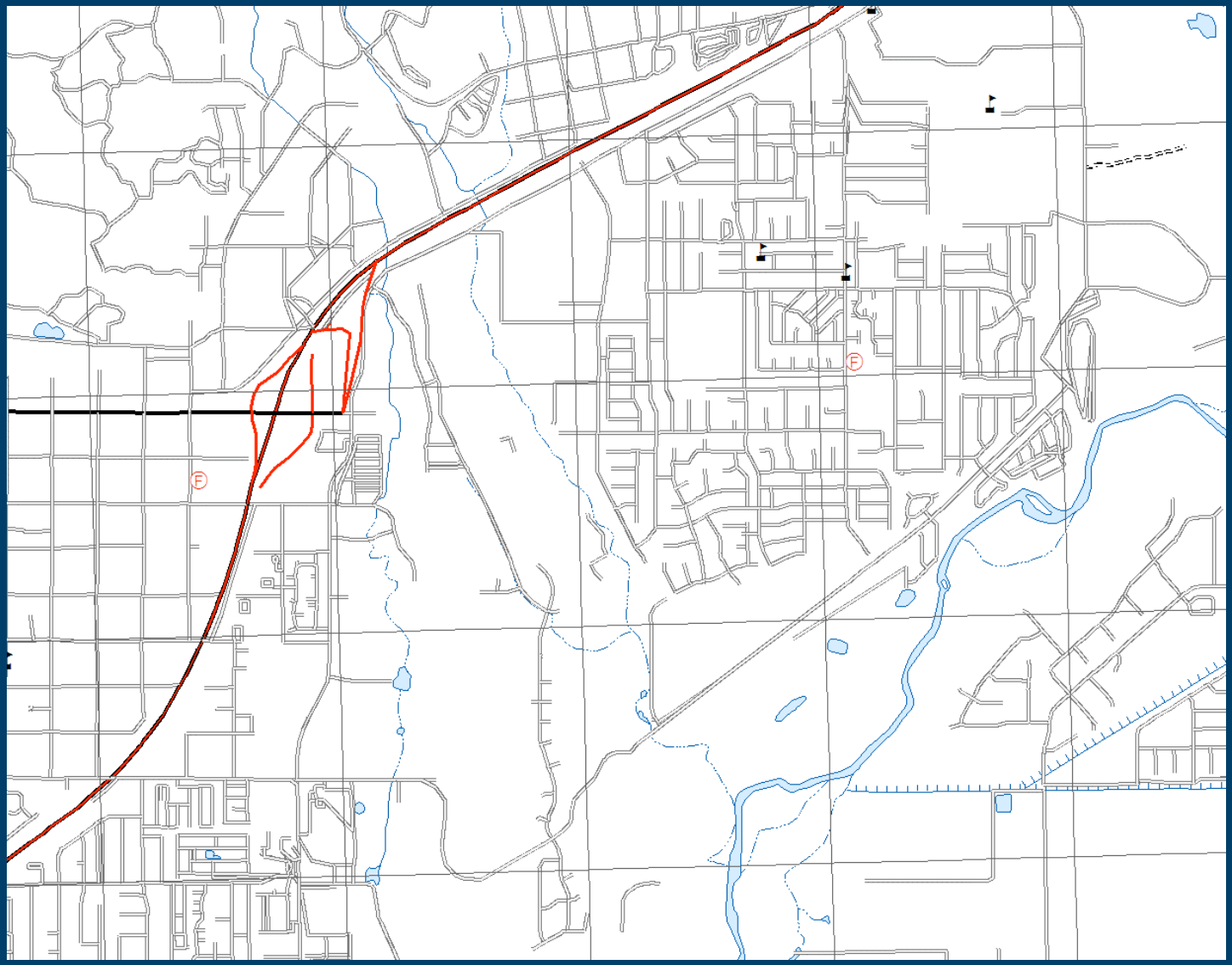


Data From *The National Map*

St. George Quad
NE Corner

Data Layers:
Transportation
Structures
NHD

Not available
from TNM:
GNIS
24K Contours
PLSS



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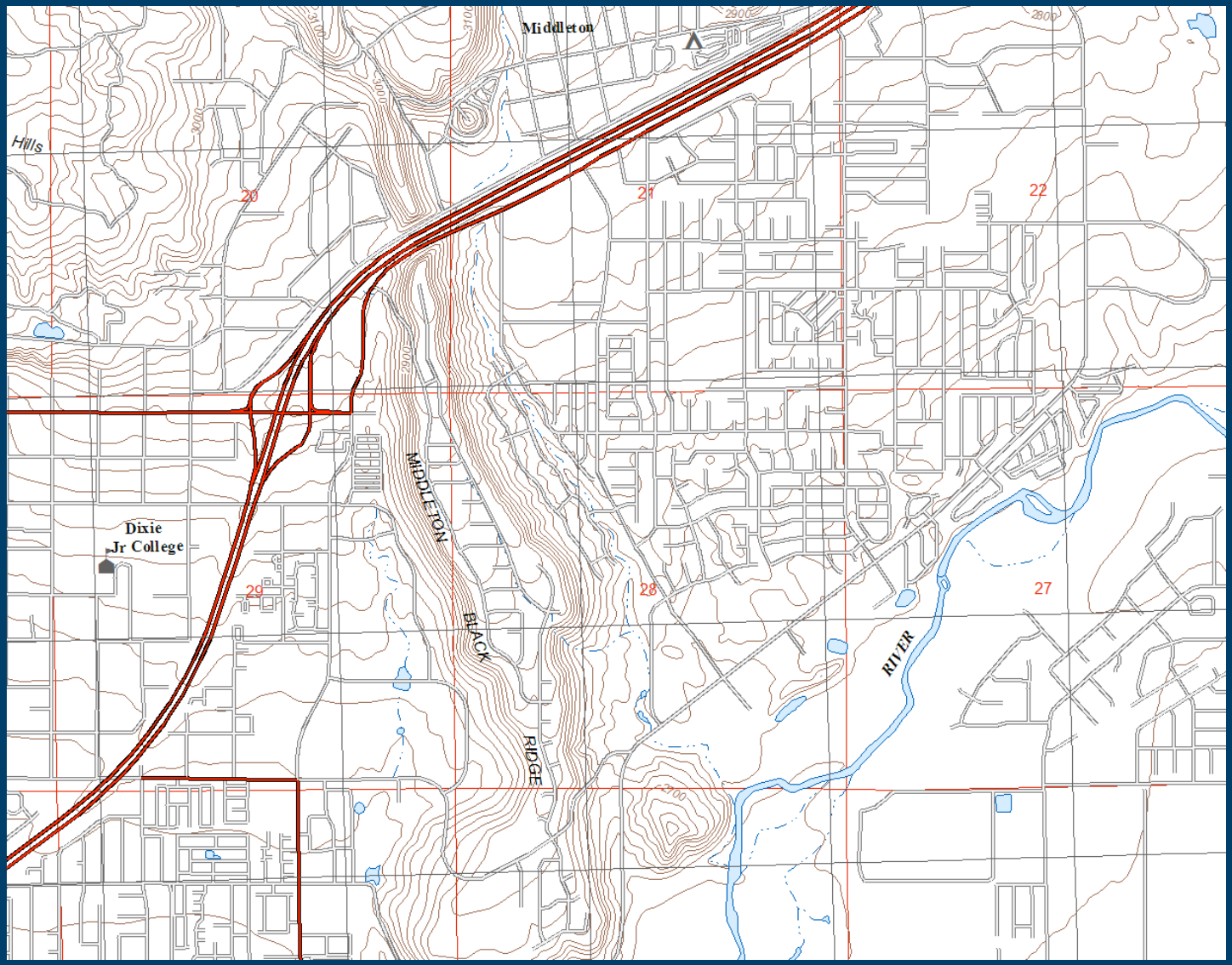
Data From The Utah Data Warehouse

St. George Quad
NE Corner

Data Layers:
Transportation
Labels - GNIS
Hydro - NHD
PLSS
Contours - NED



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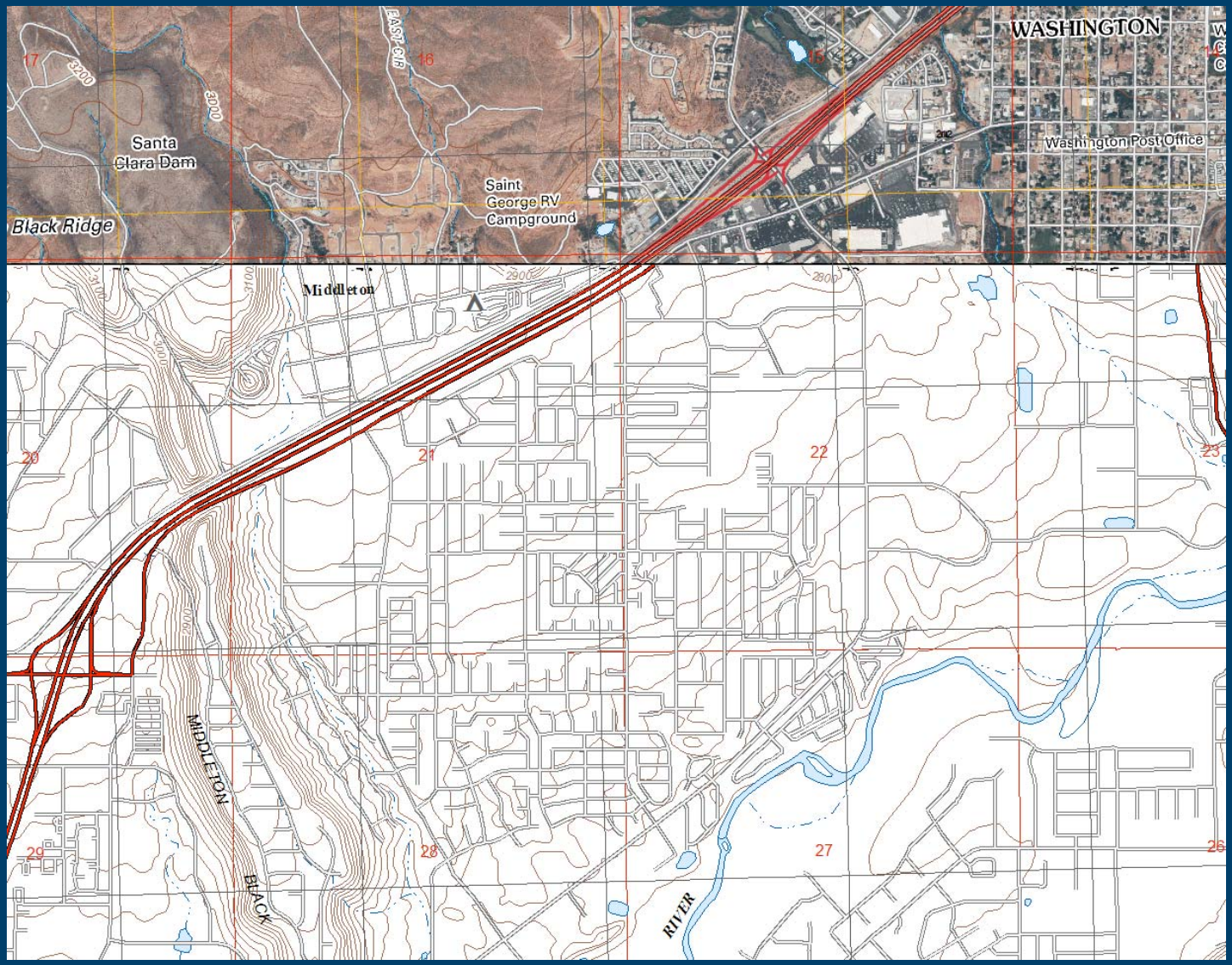
Vector Base Map Compared To US Topo

US Topo - Washington Quad

St. George Quad NE Corner



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Using Data From *The National Map*

Pros:

- A single authoritative source for base map data, as long as all data layers are available!
- Data are compatible and editable within ArcGIS
- Layers can be viewed directly in ArcMap from TNM viewer
- Goal = Data layers updated on a regular 3-year cycle
- Much higher graphic quality and more versatile than outdated digital raster graphics (DRGs)
- Considerable time/cost savings vs. gathering base map data layers from disparate sources

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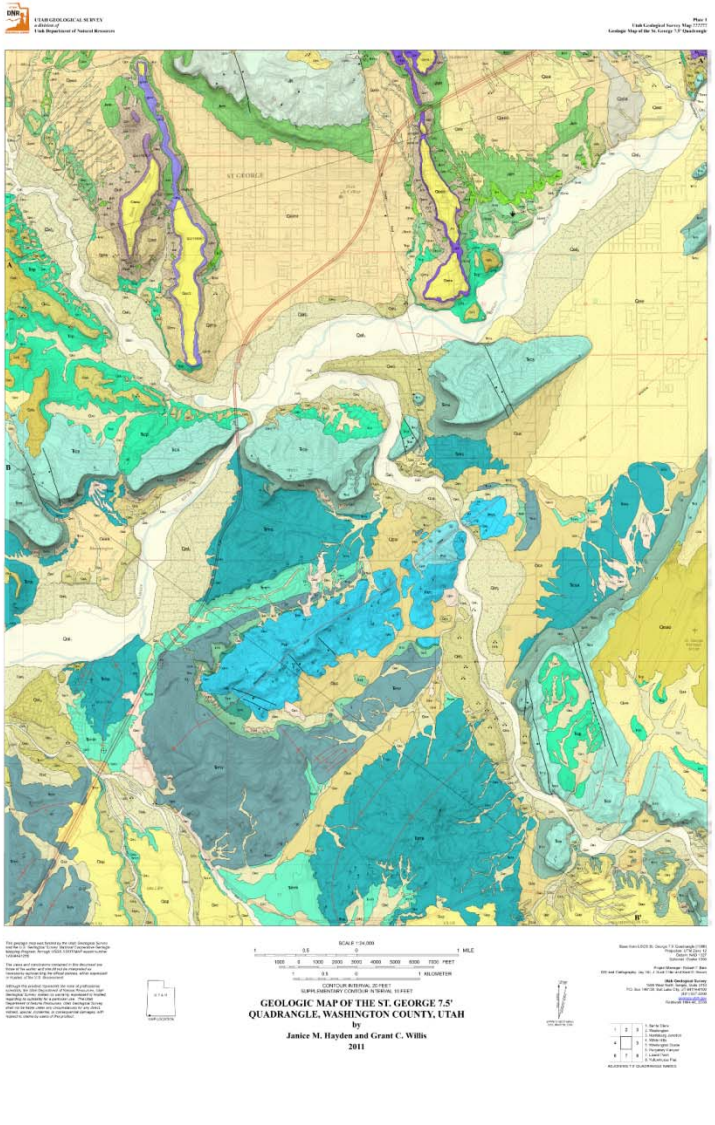
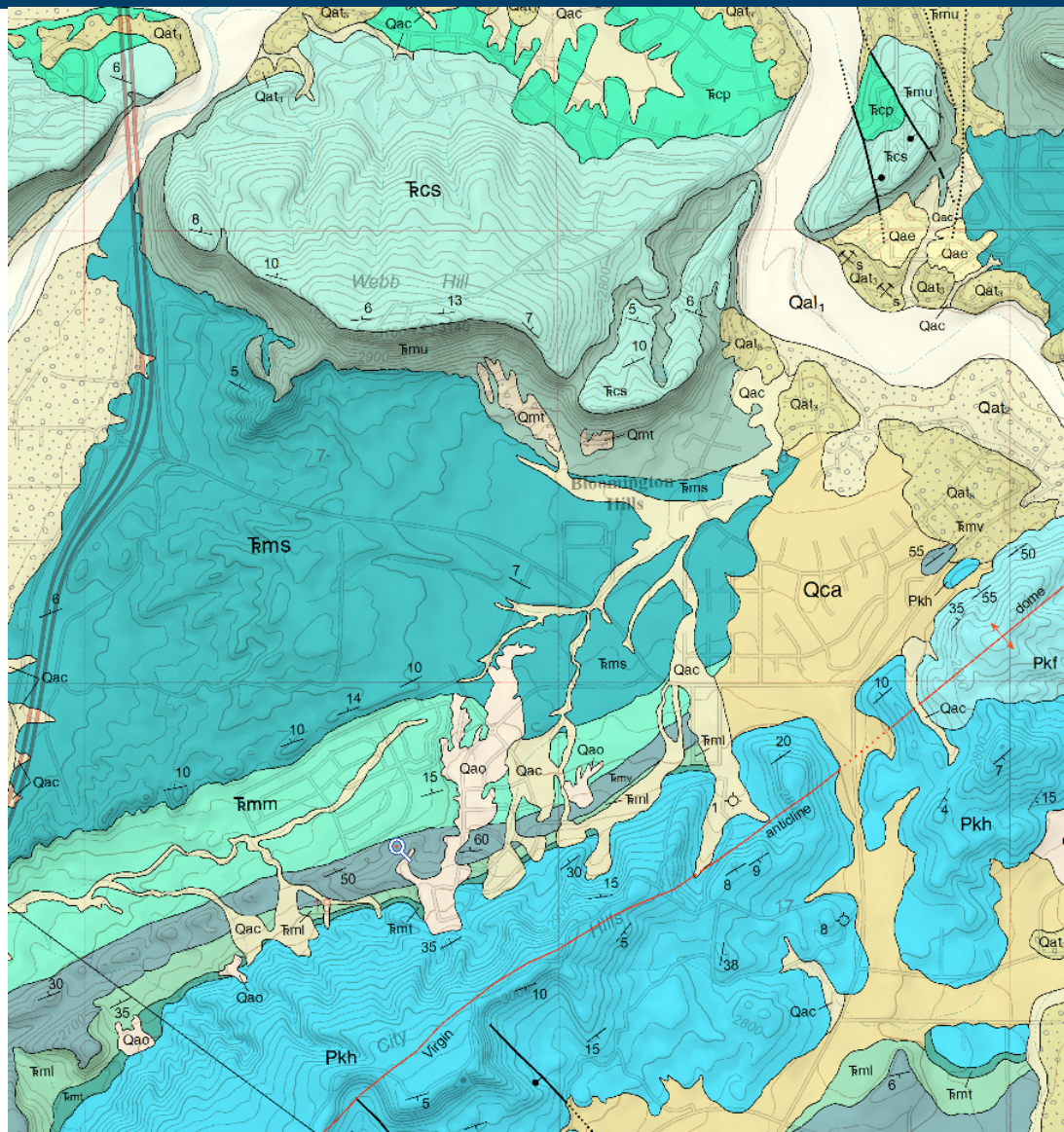
Using Data From *The National Map*

Cons:

- Transportation data is very poor – outdated, incorrect, and incomplete data attributes cause poor symbolization, and needs topological editing
- No topographic contours available, yet
- No ArcMap layer files or style files; really slows the process of feature symbolization
- No quadrangle map collar (marginalia) available without custom request (this is being worked on!)
- Data are downloaded to separate databases rather than separate feature classes in one database
- What I REALLY want is US Topo as a single database

Geologic Map of the St. George, Utah Quad





Geologic Mapping CoU– Findings

- **Transportation data is very poor – outdated, incorrect, and incomplete data attributes cause poor symbolization, and needs topological editing**

  Agree – We are working with Census to improve geometry. On another front, exploring options with commercial entities to provide publically available data

- **No topographic contours available, yet**

  Agree - Our goal is for large-scale contour to be available for visualization and download for 2/3rds of the country latter this calendar year. The remaining 1/3rd to be available in 2012

- **Cartography/Delivery Findings:**
  - **No ArcMap layer files or style files; really slows the process of feature symbolization**
  - **No quadrangle collar (marginalia) available without custom request (this is being worked on!)**
  - **Data are downloaded to separate databases rather than separate feature classes in one database**

Agree - As a result of this CoU, the proposed NGP FY2012 plan of work calls for the a geodatabase file be developed for the US Topo annotation layer and map collar

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Geologic Mapping CoU– Findings

“What I REALLY want is US Topo as a single database”

Kent Brown

Do you agree or is Kent a lone voice in the dark ?

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